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EP 97 90 3925

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
D,P, A	US 5 557 518 A (ROSEN) 17 September 1996 * the whole document *	
P,A	CHAVEZ ET AL: "Kasbah: An Agent Marketplace for Buying and Selling Goods" PAAM 96 - PROCEEDINGS OF THE FIRST INTERNATIONAL CONFERENCE ON THE PRACTICAL APPLICATION OF INTELLIGENT AGENTS AND MULTI-AGENT TECHNOLOGY, 22 - 24 April 1996, pages 75-90, XP002099613 Blackpool, GB * the whole document *	
		CLASSIFICATION OF THE APPLICATION (Int.Cl.6)  G06F17/60 G06G7/52
		TECHNICAL FIELDS SEARCHED (Int.Cl.6)  G06F
The supplementary search report has been based on the last set of claims valid and available at the start of the search.		
Place of search BERLIN		Date of completion of the search 14 April 1999
		Examiner Abram, R
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document		

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The Claims

1. A computer network agent system for providing communication between  
an anonymous potential consumer of products which can be goods or  
5 services and a provider of such products, comprising in combination:  
a consumer personal agent for receiving product queries from the potential  
consumer and transmitting product recommendations to the potential  
consumer;  
a decision agent for receiving anonymous product queries from the  
10 consumer personal agent and transmitting product recommendations  
to the consumer personal agent;  
a provider personal agent for receiving demand queries from the provider  
and transmitting quantified demand information to the provider;  
a demand agent for receiving demand queries from the provider personal  
15 agent and transmitting quantified demand information to the  
provider personal agent; and  
a market for gathering information from the agents, organizing the  
information and distributing organized information to the agents.
- 20 2. A computer network agent system according to Claim 1 wherein the  
consumer personal agent comprises, in combination:  
a unique identifier function for maintaining an identifier that uniquely  
identifies the consumer personal agent within the agent system;  
an owner manager function for maintaining data about the consumer;  
25 an individual firewall for protecting the data about the consumer from other  
agents, controlling all access to data that is maintained by the

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- various internal functions, ensuring that only authenticated and authorized agents and users can access private data;  
a preference manager for maintaining data about the preferences of the consumer;  
5 a delivery manager for accepting messages generated by other agents or other components of the system, that are directed to the consumer and delivers those messages according to the consumer's desired delivery time and delivery media and rejecting unsolicited messages, unless an unsolicited message meets the consumer's  
10 preferred criteria as maintained by the preference manager; and  
a decision agent manager for assisting the consumer with the creation and management of decision agent.
3. A computer network agent system according to Claim 1 wherein the  
15 consumer personal agent further comprises a consideration account.
4. A computer network agent system according to Claim 2 wherein the decision agent manager comprises, in combination:  
a decision composer for assisting the consumer in composing queries to be  
20 executed by decision agents;  
a decision agent factory for creating a new decision agent to carry out a query; and  
a decision agent tracker for enabling the consumer to monitor the activities of decision agents that have not completed their tasks.

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5. A computer network agent system according to Claim 4 wherein the decision agent manager further comprises a decision agent archive for storing and accessing decision agents that have completed their tasks.
- 5 6. A computer network agent system according to Claim 1 wherein the provider personal agent comprises, in combination:  
a unique identifier function for maintaining an identifier that uniquely identifies the provider personal agent within the agent system;  
an owner manager function for maintaining data about the provider;  
10 an individual firewall for protecting the data about the provider from other agents, controlling all access to data that is maintained by the various internal functions, ensuring that only authenticated and authorized agents and users can access private data;  
a preference manager for maintaining data about the preferences of the provider;  
15 a delivery manager for accepting messages generated by other agents or other components of the system, that are directed to the provider and delivers those messages according to the provider's desired delivery time and delivery media and rejecting unsolicited  
20 messages, unless an unsolicited message meets the provider's preferred criteria as maintained by the preference manager; and  
a demand agent manager for assisting the provider with the creation and management of demand agents.
- 25 7. A computer network agent system according to Claim 6 wherein the demand agent manager comprises, in combination:

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- a demand composer for assisting the provider in composing queries to be  
executed by demand agents;  
a demand agent factory for creating a new demand agent to carry out a  
query; and  
5 a demand agent tracker for enabling the provider to monitor the activities  
of demand agents that have not completed their tasks.
8. A computer network agent system according to Claim 7 wherein the  
demand agent manager further comprises a demand agent archive for  
10 storing and accessing demand agents that have completed their tasks.
9. A computer network agent system according to Claim 6 further comprising  
an advertisement manager for assisting the provider in placing  
advertisements.  
15
10. A computer network agent system according to Claim 9 wherein the  
advertisement manager comprises, in combination:  
an advertisement composer for retrieving product information;  
an advertisement delivery function for delivering an advertisement to a  
20 desired destination;  
an advertisement tracker for monitoring the activity of the advertisement,  
including any messages received in response to the advertisement,  
until the advertisement expires or is canceled by the user.
- 25 11. A computer network agent system according to Claim 10 wherein the  
advertisement manager further comprises an advertisement archive for  
storing and accessing advertisements that are expired.

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12. A computer network agent system according to Claim 6 wherein the provider personal agent further comprises a target manager for assisting the provider in identifying consumer personal agents to which targeted messages may be delivered.
- 5
13. A computer network agent system according to Claim 1 wherein the decision agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies this decision agent within the agent system;
- 10 a personal agent reference for holding a copy of the unique identifier of the consumer personal agent that controls this decision agent;
- a market reference for indicating in which market the decision agent should search;
- 15 an expiry function for indicating how long the decision agent should continue searching;
- a query for describing the product or product category for which to search;
- a response manager for receiving search results and returning the search results to the consumer personal agent; and
- 20 a log function for storing records of the activities of the decision agent.
14. A computer network agent system according to Claim 1 wherein the demand agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies this demand agent within the agent system;
- 25 a personal agent reference for holding a copy of the unique identifier of the provider personal agent that controls this demand agent;

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- a market reference for indicating in which market or markets the demand agent should search;
- a datetime range function for indicating that demand should be quantified over the date/time range specified;
- 5 a demand query for describing a product or product category query that can be matched against the queries of decision agents; and
- a log function for storing records of the activities of the demand agent for later consultation by other components of the agent system.
- 10 15. A computer network agent system according to Claim 1 wherein the market comprises, in combination:
- a product listing function for maintaining a list of the products that can be advertised in this market;
- a cross reference manager for maintaining cross references to other markets
- 15 that carry similar products;
- a sell advertisement manager for accepting advertisements of offers to sell that are submitted by consumer personal agents;
- a buy advertisement manager for accepting advertisements of offers to buy that are submitted by consumer personal agents;
- 20 an active demand agent manager for maintaining a list of all demand agents that are currently calculating demand in this market;
- a template dispenser for retrieving data that is available within the agent system about a particular product;
- a query logger for archiving summary information about queries so that
- 25 historical data about queries may be quickly accessed without having to access the detailed data which has been archived; and

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an historical demand search engine for matching demand queries of demand agents against the queries that have been previously logged by the query logger to identify decision agents that previously, during a specified datetime range, had searched for a certain product or product category.

16. A computer network agent system according to Claim 15 wherein the market further comprises a remote database adaptor for providing communication and session management services to connect to a remote database belonging to a manufacturer or a provider and translating between the data formats used by the remote database and the data formats used by the market.
17. A computer network agent system according to Claim 15 wherein the market further comprises an authorization function for restricting the placement and searching of advertisements in the market to authorized consumers and providers only.
18. A computer network agent system according to Claim 15 wherein the buy advertisement manager further comprises, in combination:  
an advertisement indexer for maintaining indexes for quick searching of the advertisements by product and vendor characteristics;  
an active advertisements function for maintaining information about advertisements that are currently active, wherein an active decision agent manager is notified as each new advertisement is accepted by the active advertisements function so that pending searches can be matched against the new advertisement;



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a future advertisements function for maintaining advertisements that have been submitted to the market, but are not yet active because their effective datetime has not yet been reached;

an expired advertisements function for maintaining an archive of advertisements that have expired, for later analysis;

an active decision agent manager for maintaining a list of all decision agents that are currently searching this market for products; and  
an expired decision agent manager for maintaining a list of decision agents that have completed their searches, whether successfully or not.

10

19. A computer network agent system according to Claim 18 wherein the active decision agent manager comprises, in combination:

an immediate agents function for keeping track of decision agents that are performing searches that are to be performed and results returned as soon as practical;

15

a basic search engine for executing queries associated with each incoming decision agent by consulting active advertisements to match the query against all active advertisements;

a pending agents function for keeping track of decision agents that are performing extended searches;

20

an incremental search engine for matching each new advertisement against the queries of the pending decision agents; and

a current demand search engine for matching demand queries of demand agents against the queries of decision agents that are residing in immediate agents or pending agents, to identify active decision agents that are searching for a certain product or product category.

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20. A computer network agent system according to Claim 15 wherein the sell advertisement manager further comprises, in combination:  
an advertisement indexer for maintaining indexes for quick searching of the advertisements by product and vendor characteristics;  
5 an active advertisements function for maintaining information about advertisements that are currently active, wherein an active decision agent manager is notified as each new advertisement is accepted by the active advertisements function so that pending searches can be matched against the new advertisement;  
10 a future advertisements function for maintaining advertisements that have been submitted to the market, but are not yet active because their effective datetime has not yet been reached;  
an expired advertisements function for maintaining an archive of advertisements that have expired, for later analysis;  
15 an active decision agent manager for maintaining a list of all decision agents that are currently searching this market for products; and  
an expired decision agent manager for maintaining a list of decision agents that have completed their searches, whether successfully or not.
- 20 21. A computer network agent system according to Claim 20 wherein the active decision agent manager comprises, in combination:  
an immediate agents function for keeping track of decision agents that are performing searches that are to be performed and results returned as soon as practical;  
25 a basic search engine for executing queries associated with each incoming decision agent by consulting active advertisements to match the query against all active advertisements;

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- a pending agents function for keeping track of decision agents that are performing extended searches;  
an incremental search engine for matching each new advertisement against the queries of the pending decision agents; and  
5 a current demand search engine for matching demand queries of demand agents against the queries of decision agents that are residing in immediate agents or pending agents, to identify active decision agents that are searching for a certain product or product category.
- 10 22. A method for searching for a product by a consumer, comprising in combination the steps of:  
selecting a decision agent manager to supervise the subsequent steps;  
composing a decision query;  
creating a decision agent;  
15 delivering the decision agent to a specified market;  
accepting the decision agent by the market; and  
searching for the product.
- 20 23. A method for searching for a product according to Claim 22 wherein the step of composing a decision query comprises, in combination, the steps of:  
if specifying an entirely new search, selecting a market in which to search;  
if the selected market is a restricted market for which the consumer is not authorized, displaying an error message to the consumer, and  
25 returning to the initial menu where another action may be selected;  
if the consumer is authorized for the restricted market, or if the market is not restricted, selecting the product for which to search;

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retrieving a product template and instructions from a market template  
dispenser;

formatting and displaying the product template and the instructions;

completing the search criteria in the product template;

5 if performing a search that will continue for a period of time, entering a  
period of time for the search to continue;

if performing a search that will return results as soon as possible, indicating  
such; and

selecting a delivery media and a delivery time and period.

10

24. A method for searching for a product according to Claim 22 wherein the  
step of creating a decision agent comprises, in combination, the steps of:  
creating a decision agent with a unique identifier;

storing a reference to the personal agent of the consumer, a reference to the

15 market that is to be searched, the search expiry time, the delivery  
media, time, and period, and the query; and

logging the creation of the decision agent with the new agent's log  
function.

20 25. A method for searching for a product according to Claim 22 wherein the  
step of accepting the decision agent comprises, in combination, the steps  
of:

accepting the new agent by an active decision agent manager;

logging the query from the agent to the market's query logger function;

25 and

adding the agent to a queue of immediate agents.

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26. A method for searching for a product according to Claim 22 wherein the step of searching for the product comprises, in combination, the steps of: searching for the product as soon as possible;  
if performing a search that will continue for a period of time, delivering  
5 the decision agent to queue of pending agents; and  
if performing a search that will return results as soon as possible, ending the decision search.
27. A method for searching for a product according to Claim 26 wherein the  
10 step of searching for the product as soon as possible comprises, in combination, the steps of:  
selecting the next decision agent from the queue;  
delivering the query from the decision agent to a search engine;  
matching the query against active advertisements;  
15 collecting matching advertisements;  
responding to each placer of an advertisement to indicate that the advertisement was collected; and  
giving the decision agent back to the active decision agent manager.
28. A method for quantifying demand by a provider for a product, comprising  
20 in combination the steps of:  
selecting a demand agent manager to supervise the subsequent steps;  
composing a demand query;  
creating a demand agent;  
25 delivering the demand agent to a market;  
accepting the demand agent by the market; and  
searching demand.

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29. A method for quantifying demand according to Claim 28, wherein the step of composing a demand query comprises, in combination, the steps of:  
if specifying an entirely new search, selecting a market in which to search;  
if the selected market is a restricted market for which the provider is not  
5 authorized, displaying an error message to the provider, and  
returning to the initial menu where another action may be selected;  
if the provider is authorized for the restricted market, or if the market is  
not restricted, selecting the product for which to search;  
retrieving a product template and instructions from a market template  
10 dispenser;  
formatting and displaying the product template and the instructions;  
completing the search criteria in the product template;  
if performing a search for historical demand, entering a date and time  
range;  
15 if performing a search for current demand, indicating such; and  
selecting a delivery media and a delivery time.
30. A method for quantifying demand according to Claim 28, wherein the step of creating a demand agent comprises, in combination, the steps of:  
20 creating a decision agent with a unique identifier;  
storing a reference to the personal agent of the provider, a reference to the  
market that is to be searched, the search expiry time, the delivery  
media, time, and period, and the query; and  
logging the creation of the new agent with the new agent's log function.  
25
31. A method for quantifying demand according to Claim 28, wherein the step of accepting the demand agent comprises, in combination, the steps of:

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accepting the agent by an active demand agent manager; and  
logging the query from the demand agent to the market's query logger  
function.

- 5        32.    A system for electronic commerce wherein market data can be collected  
and analyzed comprising:  
a plurality of consumer agents, each associated with and capable of  
communicating with a consumer;  
a consumer data base comprising consumer preference data associated with  
10            each said consumer;  
a plurality of provider agents, each associated with and capable of  
communicating with a provider; and  
a data base of offers to sell and offers to buy;  
wherein said consumer agents conceal the identity of the associated  
15            consumer from agents not associated with said consumer in said  
system;  
wherein said consumer agents are capable of searching said data base of  
offers to sell and offers to buy;  
wherein said consumer agent searching generates persistent market data;  
20            wherein said provider agents are capable of searching said consumer  
database and said persistent market data; and  
wherein said provider agents analyze said consumer database and said  
persistent market data to quantify consumer demand.
- 25        33.    The system of claim 32 wherein said consumer data base furthers  
comprises non-identifying demographic data.

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34. A computer network agent system according to Claim 32 wherein each consumer personal agent comprises, in combination:
- 5 a unique identifier function for maintaining an identifier that uniquely identifies the consumer personal agent within the agent system;
- an owner manager function for maintaining data about the consumer;
- an individual firewall for protecting the data about the consumer from other agents, controlling all access to data that is maintained by the various internal functions, ensuring that only authenticated and authorized agents and users can access private data;
- 10 a preference manager for maintaining data about the preferences of the consumer;
- a delivery manager for accepting messages generated by other agents or other components of the system, that are directed to the consumer and delivers those messages according to the consumer's desired delivery time and delivery media and rejecting unsolicited
- 15 messages, unless an unsolicited message meets the consumer's preferred criteria as maintained by the preference manager; and
- a decision agent manager for assisting the consumer with the creation and management of decision agent.
- 20
35. A computer network agent system according to Claim 32 wherein each provider personal agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies the provider personal agent within the agent system;
- 25 an owner manager function for maintaining data about the provider;
- an individual firewall for protecting the data about the provider from other agents, controlling all access to data that is maintained by the



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- various internal functions, ensuring that only authenticated and authorized agents and users can access private data;  
a preference manager for maintaining data about the preferences of the provider;
- 5 a delivery manager for accepting messages generated by other agents or other components of the system, that are directed to the provider and delivers those messages according to the provider's desired delivery time and delivery media and rejecting unsolicited messages, unless an unsolicited message meets the provider's
- 10 preferred criteria as maintained by the preference manager; and  
a demand agent manager for assisting the provider with the creation and management of demand agents.
36. A method for searching for product offers, comprising:
- 15 providing a computer system adapted to operation of agents;  
providing a consumer agent, each associated with and capable of communicating with a consumer;  
providing a consumer data base of consumer preference data associated with each said consumer;
- 20 providing a data base of offers to sell and offers to buy;  
concealing the identity of said consumer from agents not associated with said consumer;  
said consumer agent assisting said consumer in composing a query for a product or product category;
- 25 said consumer agent searching said data base of offers to sell and offers to buy, wherein said searching generates persistent market data;

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- said consumer agent retaining search results of said searching until the  
associated consumer's preferred delivery time;  
said consumer agent automatically filtering out any of said search results  
that violate any of said consumer preference data;  
5 said consumer agent ordering or ranking said search results according to  
said consumer preference data;  
said consumer agent formatting said search results for delivery to said  
associated consumer's preferred communication device; and  
said consumer agent delivering said search results to said communication  
10 device;  
whereby said consumer can gather product data that is automatically  
filtered and ranked according to said consumer preferences.
37. The method of claim 36 further comprising:  
15 providing a data base of advocate evaluation and recommendation data;  
said consumer selecting data from said data base of advocate evaluation and  
recommendation data to include in said consumer's said consumer  
data base of consumer preference data;  
said consumer agent thereby further automatically filtering out any of said  
20 results that violate consumer's selected advocate evaluation and  
recommendation data;  
whereby said consumer has a convenient way to use advocate evaluation  
and recommendation data to automatically filter and rank said  
search results.
- 25 38. A method for collecting and analyzing market data, comprising:  
providing a computer system adapted to operation of agents;

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- providing a plurality of consumer agents, each associated with and capable of communicating with a consumer;  
providing a consumer data base of consumer preference data associated with each said consumer;  
5 providing a plurality of provider agents, each associated with and capable of communicating with a provider;  
providing a data base of offers to sell and offers to buy;  
concealing the identity of said consumer from agents not associated with said consumer;  
10 searching by said consumer agents of said data base of offers to sell and offers to buy, wherein said searching generates persistent market data;  
searching by said provider agents of said consumer data base and of said persistent market data to discover which of said consumer agents  
15 possess certain preferences and generated certain records within said persistent market data;  
analyzing the results of said searching by said provider agents to quantify consumer demand;  
whereby consumers are encouraged to utilize said system because the  
20 identity of each said consumer is concealed from said agents not associated with said consumer in said system; and  
whereby providers can gain access to valuable said persistent market data without imposing on or invading the privacy of said consumers.
- 25 39. The method of claim 38 wherein said searching by said provider agents is restricted to current data within said persistent market data, and said analyzing quantifies current consumer demand.

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40. The method of claim 38 wherein said searching by said provider agents is restricted to historical data within said persistent market data, and said analyzing quantifies historical consumer demand.
- 5 41. A method for quantifying future demand for a certain product or a certain product category, utilizing persistent market data generated by consumer agents that conceal the identity of said consumer agent's associated consumer, while searching a data base of offers to sell and offers to buy, and utilizing a consumer data base of consumer preference data,  
10 comprising:  
searching said consumer data base to discover which of said consumer agents possess certain preferences;  
searching said persistent market data to discover which of said consumer agents, while searching for products related to said certain product  
15 or certain product category, generated certain records within said persistent market data;  
whereby a provider can select specific consumers that may be interested in said certain product or certain product category.
- 20 42. A method for targeting specific consumers, each of whose identity remains concealed, according to their on-line shopping activities and preferences, utilizing persistent market data generated by consumer agents that conceal said identity while searching a data base of offers to sell and offers to buy, and utilizing a consumer data base of consumer preference data,  
25 comprising:  
searching said consumer data base to discover which of said consumer agents possess certain preferences;

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searching said persistent market data to discover which of said consumer agents generated certain records within said persistent market data; whereby a provider can select specific consumers to receive messages.

- 5      43.    The method of claim 42 wherein said certain records pertain to said consumer agents searching for specific products.
44.    The method of claim 42 wherein said certain records pertain to said consumer agents searching within a product category.
- 10      45.    A method of extending a consideration payment to a consumer, whose identity remains concealed, in return for said consumer providing useful market data to a provider, comprising:
- 15      said provider selecting consumer agents to receive a message;
- said provider causing said message to be delivered to said consumer agents;
- each of said consumer agents displaying said message to said consumer agent's associated consumer;
- each of said associated consumers generating a response to said message;
- said provider's associated provider agent generating, for each said response
- 20      received, a consideration notice addressed to the consumer agent associated with the consumer that generated the response;
- said associated provider agent causing each said consideration notice to be delivered to said associated consumer agent;
- each said consumer agent crediting said associated consumer's
- 25      consideration account;
- whereby said consumer can receive a consideration payment for divulging useful market data to said provider; and

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whereby said provider can solicit valuable market data without imposing on or invading the privacy of said consumers.

- 5           46.   The method of claim 45 wherein said message is an advertisement.
47.   The method of claim 45 wherein said message is a marketing survey.
48.   The method of claim 45 wherein said message is a questionnaire about the  
10           reason for a sale.
49.   The method of claim 45 wherein said message is a questionnaire about the  
          reason for a lost sale.
- 15           50.   A method of a consumer automatically rejecting certain unsolicited  
          messages from a provider, comprising:  
          said provider causing a message to be delivered to a consumer agent;  
          said consumer agent comparing aspects of said message to a consumer data  
                  base of consumer preference data;  
          if said message satisfies said consumer preference data, said consumer  
20           agent allowing said message to complete delivery to said consumer;  
          if said message violates said consumer preference data, said consumer  
          agent rejecting said message by:  
                  automatically generating a rejection message including an indication  
                  of the violated consumer preferences;  
25           causing said rejection message to be delivered to said provider;  
          whereby said provider can gain valuable market data even from messages  
          that are blocked from delivery.

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51. A method of a provider simulating demand, comprising:  
providing a data base of offers to sell and offers to buy;  
providing a provider agent associated with and capable of communicating  
with a provider;  
5 providing a plurality of consumer agents, each associated with and capable  
of communicating with a consumer;  
said provider places an invisible advertisement in said data base of offers to  
sell and offers to buy;  
a consumer agent, when ordering or ranking search results, if said search  
10 results include a reference to said invisible advertisement, ranks said  
invisible advertisement along with other said search results;  
said consumer agent, when ranking said invisible advertisement, generates  
a message indicating the ranking of the invisible advertisement;  
said consumer agent sends said message to the associated provider agent;  
15 said consumer agent, when delivering said search results to the preferred  
communication device of the associated consumer, omits said  
invisible ad;  
whereby said provider can determine simulated demand for the product  
described by said invisible ad.  
20
52. A method of a provider replaying demand, comprising:  
providing a plurality of consumer agents, each associated with and capable  
of communicating with a consumer;  
providing a data base of offers to sell and offers to buy;  
25 consumer agents searching said data base of offers to sell and offers to buy,  
whereby said consumer agent searching generates persistent market  
data;

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a provider composes an invisible advertisement;  
said provider selects at least one said consumer agent that has completed  
said searching;  
said consumer agent is instructed to rank said invisible advertisement;  
5 said consumer agent ranks said invisible advertisement along with other  
said search results;  
said consumer agent, when ranking said invisible advertisement, generates  
a message indicating the ranking of the invisible advertisement;  
said consumer agent sends said message to the associated provider agent;  
10 whereby said provider can determine simulated demand in historical time  
for the product described by said invisible ad.

53. In a computer network agent system for providing communication between  
an anonymous potential consumer of products which can be goods or  
15 services and a provider of such products, the combination comprising:  
a decision agent for receiving anonymous product queries from the  
consumer and transmitting product recommendations to the  
consumer;  
a demand agent for receiving demand queries from the provider and  
20 transmitting quantified demand information to the provider; and  
a market for gathering information from the agents, organizing the  
information and distributing organized information to the agents.
54. A combination according to Claim 53 wherein the decision agent  
25 comprises, in combination:  
a unique identifier function for maintaining an identifier that uniquely  
identifies this decision agent within the agent system;



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- a market reference for indicating in which market the decision agent should search;
- an expiry function for indicating how long the decision agent should continue searching;
- 5 a query for describing the product or product category for which to search;
- a response manager for receiving search results and returning the search results to the consumer; and
- a log function for storing records of the activities of the decision agent.
- 10 55. A combination according to Claim 53 wherein the demand agent comprises, in combination:
- a unique identifier function for maintaining an identifier that uniquely identifies this demand agent within the agent system;
- a market reference for indicating in which market or markets the demand agent should search;
- 15 a datetime range function for indicating that demand should be quantified over the date/time range specified;
- a demand query for describing a product or product category query that can be matched against the queries of decision agents; and
- 20 a log function for storing records of the activities of the demand agent for later consultation by other components of the agent system.
56. A combination according to Claim 53 wherein the market comprises, in combination:
- 25 a product listing function for maintaining a list of the products that can be advertised in this market;

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- a cross reference manager for maintaining cross references to other markets  
that carry similar products;  
a sell advertisement manager for accepting advertisements of offers to sell  
that are submitted by consumers;  
5 a buy advertisement manager for accepting advertisements of offers to buy  
that are submitted by consumers;  
an active demand agent manager for maintaining a list of all demand agents  
that are currently calculating demand in this market;  
a template dispenser for retrieving data that is available within the agent  
10 system about a particular product;  
a query logger for archiving summary information about queries so that  
historical data about queries may be quickly accessed without  
having to access the detailed data which has been archived; and  
an historical demand search engine for matching demand queries of  
15 demand agents against the queries that have been previously logged  
by the query logger to identify decision agents that previously,  
during a specified datetime range, had searched for a certain  
product or product category.
- 20 57. A combination according to Claim 56 wherein the market further comprises  
a remote database adaptor for providing communication and session  
management services to connect to a remote database belonging to a  
manufacturer or a provider and translating between the data formats used  
by the remote database and the data formats used by the market.

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